



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/537,800

06/07/2005

Laurent Lestarquit

0509-1092

6597

466

7590

10/01/2008

YOUNG & THOMPSON

209 Madison Street

Suite 500

ALEXANDRIA, VA 22314

EXAMINER

STEVENS, BRIAN J

ART UNIT

PAPER NUMBER

2611

MAIL DATE

DELIVERY MODE

10/01/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/537,800	Applicant(s) LESTARQUIT, LAURENT	
	Examiner Brian J. Stevens	Art Unit 2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 June 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 23-44 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 23-25, 28-32 and 34-44 is/are rejected.
- 7) ☒ Claim(s) 26, 27 and 33 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 June 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Allowable Subject Matter

1. Claims 26, 27, and 33 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Drawings

2. Figure 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

3. The drawings are objected to because the unlabeled rectangular box(es) shown in the drawings should be provided with descriptive text labels. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing

Art Unit: 2611

should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

4. The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant’s use.

Arrangement of the Specification

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase “Not Applicable” should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT.
- (e) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC.
- (f) BACKGROUND OF THE INVENTION.
 - (1) Field of the Invention.

(2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.

(g) BRIEF SUMMARY OF THE INVENTION.

(h) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).

(i) DETAILED DESCRIPTION OF THE INVENTION.

(j) CLAIM OR CLAIMS (commencing on a separate sheet).

(k) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).

(l) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

5. The abstract of the disclosure is objected to because it exceeds the 150 word limit and too extensively states design details of the apparatus. Correction is required. See MPEP § 608.01(b). Applicant is reminded of the proper content of an abstract of the disclosure.

6. A patent abstract is a concise statement of the technical disclosure of the patent and should include that which is new in the art to which the invention pertains. If the patent is of a basic nature, the entire technical disclosure may be new in the art, and the abstract should be directed to the entire disclosure. If the patent is in the nature of an improvement in an old apparatus, process, product, or composition, the abstract should include the technical disclosure of the improvement. In certain patents, particularly those for compounds and compositions, wherein the process for making and/or the use thereof are not obvious, the abstract should set forth a process for making and/or use thereof. If the new technical disclosure involves modifications or alternatives, the abstract should mention by way of example the preferred modification or alternative.

7. The abstract should not refer to purported merits or speculative applications of the invention and should not compare the invention with the prior art.

Where applicable, the abstract should include the following:

- (1) if a machine or apparatus, its organization and operation;
- (2) if an article, its method of making;
- (3) if a chemical compound, its identity and use;
- (4) if a mixture, its ingredients;
- (5) if a process, the steps.

Extensive mechanical and design details of apparatus should not be given.

Information Disclosure Statement

8. The information disclosure statement filed June 7th, 2008 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 23-25 and 28-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 5,459,763 by Hori et al, in view of US 5,995,233 by Ohtomo et al., in further view of US 6,335,951 B1 by Cangiani et al.

11. Regarding claim 23, Hori teaches a method of generating a modulated navigation signal (See Abstract, "Signals representing navigation messages from four GPS artificial satellites") which is intended to be used to position a downlink receiver (See Abstract, "received by a GPS receiver"), comprising multiple pseudorandom navigation codes (See Column 1, Lines 20-23, "navigation message with pseudo random noise") of chip rhythms greater than 0.5 MHz (See Column 1, Lines 23-24, "having a chip frequency of 1.023 MHz"), modulated onto a carrier of frequency fp (See Column 1, Lines 24,

Art Unit: 2611

“modulating a carrier”) greater than 500 MHz (See Column 1, Line 24, “having a frequency of 1,575.42 MHz”), wherein four pseudorandom navigation codes C1, C2, C1', C2' (See Abstract, “Signals representing navigation messages from four GPS artificial satellites”) are modulated onto the carrier according to an 8-PSK modulation (See Column 1, Lines 26, “with the spectrally spread signal by way of phase-shift keying (PSK)”) but does not teach of constant amplitude with a modulation frequency f_M such that:

$$8f_c < f_M$$

where $f_c = \text{Max}(f_{ci})$, and f_{ci} designates the chip rhythms f_{c1} , f_{c1}' , f_{c2} , f_{c2}' of the navigation codes C1, C2, C1', C2', each f_{ci} value being such that $f_M = N_i \cdot f_{ci}$, N_i being an integer greater than or equal to 8, two navigation codes C1, C1' being quadrature modulated at frequency $f_1 = f_p - f_M/8$, and two other navigation codes C2, C2' being quadrature modulated at frequency $f_2 = f_p + f_M/8$, and the modulated navigation signal presenting a constant envelope.

12. Ohtomo teaches the knowledge of modulating a signal using PSK with a modulation frequency 15 MHz (See Column 18, Lines 34-38), is well known in the art. By working through the equations in the limitations of the claims: $8f_c < f_M$ where $f_c = \text{Max}(f_{ci})$, and f_{ci} designates the chip rhythms f_{c1} , f_{c1}' , f_{c2} , f_{c2}' of the navigation codes C1, C2, C1', C2', each f_{ci} value being such that $f_M = N_i \cdot f_{ci}$, N_i being an integer greater than or equal to 8, in turn equals $f_{ci} = 1.023 \text{ MHz}$ as stated above, f_M becomes 15 MHz, $f_c = 1.875 \text{ MHz}$, and $N_i = 14$.

Art Unit: 2611

13. Cangiani teaches the knowledge of having the generated signal with a constant amplitude (See Claim 16, "said plurality of modulated signals and said intermodulated signal when mixed form a signal of substantially constant amplitude") and wherein the generated modulated navigation signal has a constant envelope (See Claim 1, "wherein said global positioning signal has a constant envelope"), is well known in the art.

Cangiani further teaches the knowledge of having two signal quadrature to each other and modulated at a frequency f_1 and f_2 (See Column 1, Lines 20-26), is well known in the art.

14. It would have been obvious to one of ordinary skill in the art, having the teachings of Hori and Ohtomo before them at the time the invention was made, to modify the teachings of Hori to further include with a modulation frequency f_M such that: $8f_c < f_M$, where $f_c = \text{Max}(f_{ci})$, and f_{ci} designates the chip rhythms f_{c1} , f_{c1}' , f_{c2} , f_{c2}' of the navigation codes C_1 , C_2 , C_1' , C_2' , each f_{ci} value being such that $f_M = N_i \cdot f_{ci}$, N_i being an integer greater than or equal to 8. By having the f_M to be in the range of 15 MHz would make it have less interference with other objects running at different frequencies, and would also still fall within the RF frequency range, which is how the signal is being transmitted. One of ordinary skill in the art would therefore have been motivated to make the modification to further include having modulating a signal using PSK with a modulation frequency 15 MHz.

15. It would have been obvious to one of ordinary skill in the art, having the teachings of Hori, Ohtomo and Cangiani before them at the time the invention was made, to modify the teachings of Hori and Ohtomo to further include having the

Art Unit: 2611

generated signal with a constant, wherein the generated modulated navigation signal has a constant envelope and having two signals quadrature to each other and modulated at a frequency f_1 and f_2 . By having the signals with constant amplitudes, errors in the signal can be found if the amplitude exceeds a certain threshold. By applying a non-constant envelope signals to saturated amplifiers would result in signal distortions that can impact navigation accuracy. Lastly, by having two signals with proportionally different frequencies, a filter can filter out the signal that is less useable for the receiver. One of ordinary skill in the art would therefore have been motivated to make the modification to further include having the generated signal with a constant, wherein the generated modulated navigation signal has a constant envelope and having two signals quadrature to each other and modulated at a frequency f_1 and f_2

16. Regarding claim 24, Hori together with Ohtomo and Cangiani taught the method of claim 23, as described above. Ohtomo further teaches wherein f_m is chosen to be < 400 MHz (See Column 18, Lines 34-38).

17. Regarding claim 25, Hori together with Ohtomo and Cangiani taught the method of claim 23, as described above. Cangiani further teaches the knowledge of generating a modulated navigation signal on board a space satellite (See Abstract, "A method for generating a global positioning signal from a space based craft"). Ohtomo further teaches wherein f_m is chosen to be < 200 MHz (See Column 18, Lines 34-38).

Art Unit: 2611

18. Regarding claim 28 and 29, Hori together with Ohtomo and Cangiani taught the method of claim 23, as described above. The limitations listed in both claims 28 and 29 are inherently obvious to anyone skilled in the art as to how 8-PSK modulation is determined and phase states chosen. The truth table listed in claim 29, does not further limit on how 8-PSK modulation is determined, and is shown to be a standard procedure. Examiner takes official notice.

19. Regarding claim 30, Hori together with Ohtomo and Cangiani taught the method of claim 23, as described above. Hori further teaches the knowledge wherein f_p is between 1000 MHz and 1700 MHz (See Column 1, Line 24, "having a frequency of 1,575.42 MHz").

20. Regarding claim 31, Hori together with Ohtomo and Cangiani taught the method of claim 23, as described above. Ohtomo further teaches the knowledge wherein f_c is of the order of 10 MHz (See Column 18, Lines 34-38, where f_m is 15 MHz, thus by the equation $15\text{MHz}/8 = f_c$ which is 1.875 MHz).

21. Claim 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over US 5,459,763 by Hori et al, in view of US 5,995,233 by Ohtomo et al., in further view of US 6,335,951 B1 by Cangiani et al, in further view of US 5,808,986 by Jewell.

22. Regarding claim 32, Hori together with Ohtomo and Cangiani taught the method as claimed in claim 23, but do not teach wherein f_m is of the order of 120 MHz. Jewell

Art Unit: 2611

teaches the knowledge of having a signal modulated at a frequency to the order of 120 MHz (See Column 8, Lines 35-36), is well known in the art.

23. It would have been obvious to one of ordinary skill in the art, having the teachings of Hori, Ohtomo, Cangiani and Jewell before them at the time the invention was made, to modify the teachings of Hori, Ohtomo and Cangiani to further include wherein fM is of the order of 120 MHz. Modulating a signal at a specific frequency is a design choice of the inventor and does not change how the signal is being modulated since 120 MHz is still within the range of radio frequencies. One of ordinary skill in the art would therefore have been motivated to make the modification to further include having a signal modulated at a frequency to the order of 120 MHz.

24. Claims 34-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 5,459,763 by Hori et al, in view of US 5,637,826 by Bessacini et al.

25. Regarding claim 34, Hori teaches A device for generating a modulated navigation signal which is intended to be used to position a downlink receiver, comprising multiple pseudorandom navigation codes of chip rhythms greater than 0,5 MHz, modulated onto a carrier of frequency fp greater than 500 MHz, this device comprising:

- a circuit to generate pseudorandom navigation codes (See Column 1, Lines 21-23, "Each of the artificial satellites transmits a signal which is produced by spectrally spreading a navigation message with pseudo random noise", where in order to transmit the signal they must be generated),

Art Unit: 2611

- a phase-shifting modulator circuit which supplies the modulated navigation signal on the carrier (See Column 1, Lines 25-26, "with the spectrally spread signal by way of phase-shift keying (PSK).", where the signal is modulated with phase shifting on a carrier, as show in Column 1, Lines 24, "modulating a carrier"),

- an emitter circuit (See Column 1, Line 21, "Each of the artificial satellites transmits a signal", in order to transmit an emitter circuit has to be present), and suitable for emitting a radio frequency signal corresponding to the modulated navigation signal (See Column 1, Lines 20-26, "modulating a carrier (having a frequency of 1,575.42 MHz or 1227.6 MHz)", where the frequency range falls within the radio frequency range), but does not teach wherein at least one power amplification stage is present.

26. Bessacini teaches the knowledge of having a navigation signal emitted from a GPS system that has been amplified by at least one power amplification stage (See Column 1, Lines 43-45), is well known in the art. The following limitations listed within claim 34, hold no patentable weight since they do not further limit the device that is claimed above. The device claimed above is able to perform the limitations listed below where no further changes the claimed device are necessary to perform the listed steps:

wherein the modulator circuit is suitable for modulating, on the carrier, four pseudorandom navigation codes C_1 , C_2 , C_1' , C_2' of which the frequencies are an integer multiple of one of them f_c , according to an 8-PSK modulation of constant amplitude with a modulation frequency f_M such that:

$$8 f_c f_M$$

Art Unit: 2611

where $f_c = \text{Max}(f_{ci})$, and f_{ci} designates the chip rhythms f_{c1} , f_{c1}' , f_{c2} , f_{c2}' of the navigation codes $C1$, $C2$, $C1'$, $C2'$, each f_{ci} value being such that $f_M = N_i \cdot f_{ci}$, N_i being an integer greater than or equal to 8, two navigation codes $C1$, $C1'$ being quadrature modulated at frequency $f_1 = f_p - f_M/8$, and two other navigation codes $C2$, $C2'$ being quadrature modulated at frequency $f_2 = f_p + f_M/8$, and the modulated navigation signal presenting a constant envelope.

27. It would have been obvious to one of ordinary skill in the art, having the teachings of Hori and Bessacini before them at the time the invention was made, to modify the teachings of Hori to further include wherein at least one power amplification stage is present within the emitter. In order to successfully transmit a signal from great distances to another, an amplification stage would be necessary to give the signal gain thus having less interference when reaching the receiver. One of ordinary skill in the art would therefore have been motivated to make the modification to further include having wherein at least one power amplification stage is present.

28. Regarding claims 35-44, the limitations claimed do no further limit the device that is described within claim 34, from which it depends. The modulation techniques that are specified within claims 35-44 do not change the design of the device that is claimed within claim 34. The limitations as listed only describe how the modulation is done, which in turn can be performed with the modulator that is claimed within claim 34. The examiner takes official notice.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian J. Stevens whose telephone number is (571)270-3623. The examiner can normally be reached on M-F 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Payne can be reached on 571-272-3024. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

BS
/Brian J. Stevens/

/Kevin M. Burd/

Primary Examiner, Art Unit 2611